

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF
MERVIN WOOD ET AL

Group Art Unit:
Examiner:

APPLICATION NO: not yet assigned

FILED: concurrently with this paper

FOR: BLOOM RESISTANT BENZOTRIAZOLE UV
ABSORBERS AND COMPOSITIONS
STABILIZED THEREWITH

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

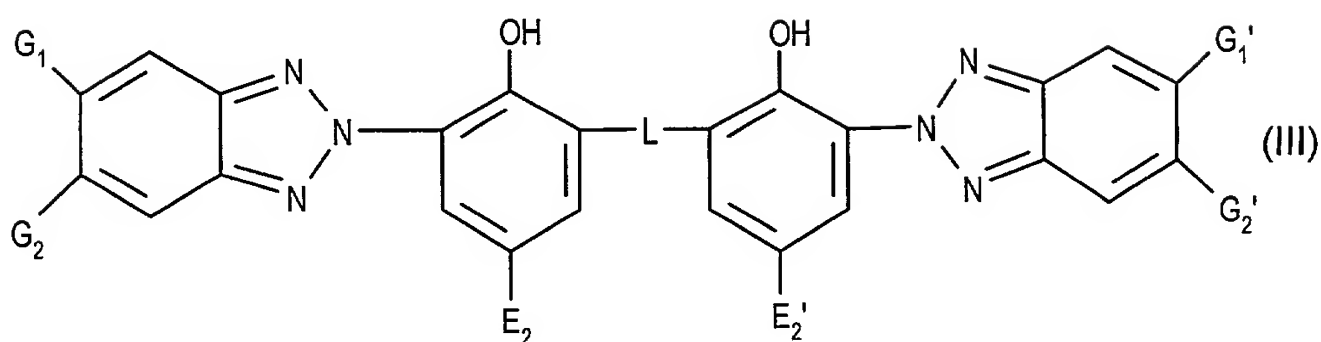
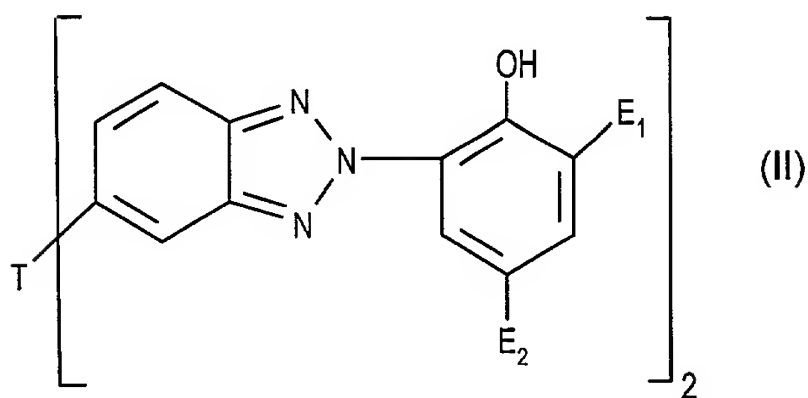
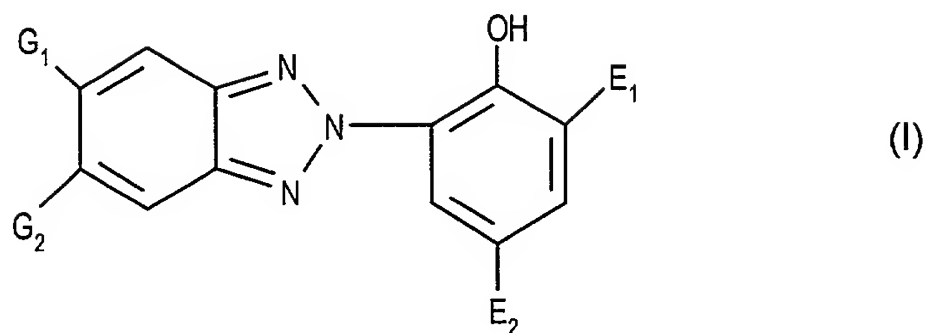
Applicants present this Preliminary Amendment in this divisional application for entry and consideration. A Notice of Allowance dated Dec. 4, 2001 is issued in the parent application, application No. 09/496,084, filed Feb. 1, 2000. The parent application is co-pending with the filing of this divisional application.

In the Claims

Cancel claims 1-29 (all claims).

Please insert the following new claims:

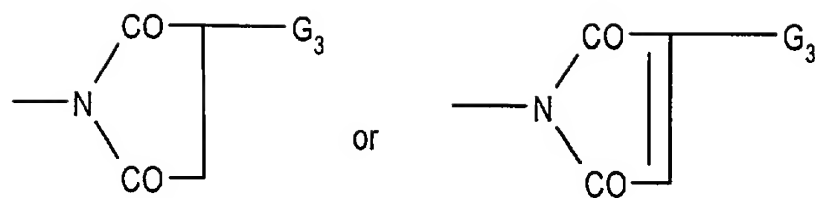
30. (new) A compound of formula I, II or III



wherein

G_1 and G_1' are independently hydrogen or halogen,

G_2 and G_2' are independently hydrogen, halogen, nitro, cyano, E_3SO^- , $E_3SO_2^-$, $-COOG_3$, perfluoroalkyl of 1 to 12 carbon atoms, $-P(O)(C_6H_5)_2$, $-CO-G_3$, $-CO-NH-G_3$, $-CO-N(G_3)_2$, $-N(G_3)-CO-G_3$,



G_3 is hydrogen, straight or branched chain alkyl of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, phenyl, or said phenyl or said phenylalkyl substituted on the phenyl ring by 1 to 4 alkyl of 1 to 4 carbon atoms; or G_3 is T_1 or T_2 ,

E_1 is hydrogen, straight or branched chain alkyl of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 24 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, phenyl, or said phenyl or said phenylalkyl substituted on the phenyl ring by 1 to 4 alkyl of 1 to 4 carbon atoms; or E_1 is alkyl of 1 to 24 carbon atoms substituted by one or two hydroxy groups; or E_1 is the group $-(CH_2)_m-CO-X-T_1$ where m is 0, 1 or 2; or E_1 is the group $-(CH_2)_p-X-CO-T_2$ where p is 1, 2 or 3,

E_2 and E_2' are independently straight or branched alkyl chain of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, phenyl, or said phenyl or said phenylalkyl substituted on the phenyl ring by one to three alkyl of 1 to 4 carbon atoms; or E_2 and E_2' are independently said alkyl of 1 to 24 carbon atoms or said alkenyl of 2 to 18 carbon atoms substituted by one or more $-OH$, $-OCOE_{11}$, $-OE_4$, $-NH_2$, $-NHCOE_{11}$, $-NHE_4$ or $-N(E_4)_2$, or mixtures thereof, where E_4 is straight or branched chain alkyl of 1 to 24 carbon atoms; or said alkyl or said alkenyl interrupted by one or more $-O-$, $-NH-$ or $-NE_4-$ groups or mixtures thereof and which can be unsubstituted or substituted by one or more $-OH$, $-OE_4$ or $-NH_2$ groups or mixtures thereof; or E_2 and E_2' are independently $-(CH_2)_m-CO-X-T_1$ or $-(CH_2)_p-X-CO-T_2$, or E_4 is T_1 or T_2 ,

X is $-O-$ or $-N(E_{16})-$,

E_{16} is hydrogen, C_1 - C_{12} -alkyl, C_3 - C_{12} -alkyl interrupted by 1 to 3 oxygen atoms, or is cyclohexyl or C_7 - C_{15} aralkyl,

E_{11} is a straight or branched chain C_1 - C_{18} alkyl, C_5 - C_{12} cycloalkyl, straight or branched chain C_2 - C_{18} alkenyl, C_6 - C_{14} aryl or C_7 - C_{15} aralkyl; or E_{11} is T_1 or T_2 ,

E₃ is alkyl of 1 to 20 carbon atoms, hydroxyalkyl of 2 to 20 carbon atoms, alkenyl of 3 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, aryl of 6 to 10 carbon atoms or said aryl substituted by one or two alkyl of 1 to 4 carbon atoms or 1,1,2,2-tetrahydroperfluoroalkyl where the perfluoroalkyl moiety is of 6 to 16 carbon atoms,

L is alkylene of 1 to 12 carbon atoms, alkylidene of 2 to 12 carbon atoms, benzylidene, p-xylylene, $\alpha,\alpha,\alpha',\alpha'$ -tetramethyl-m-xylylene or cycloalkylidene, and

T is -SO-, -SO₂-, -SO-E-SO-, -SO₂-E-SO₂-, -CO-, -CO-CH₂-CO-, -CO-E-CO-, -COO-E-OCO- or -CO-NG₅-E-NG₅-CO-,

where E is alkylene of 2 to 12 carbon atoms, cycloalkylene of 5 to 12 carbon atoms, or alkylene interrupted or terminated by cyclohexylene of 8 to 12 carbon atoms;

G₅ is G₃ or hydrogen,

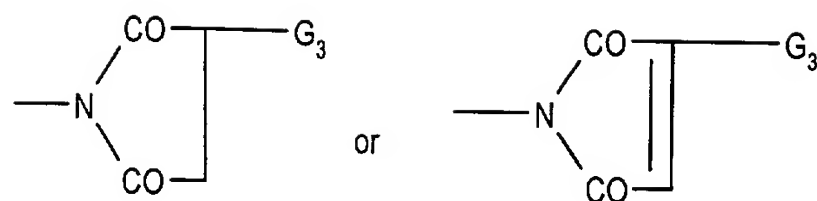
T₁ is straight or branched chain alkyl of 25 to 100 carbon atoms, or said alkyl substituted by one hydroxyl group and interrupted by one oxa moiety, or a mixture of such alkyl moieties; or

T₁ is -(R-O)_n-R-OG_x where R is ethylene, propylene, trimethylene, 1,2-butylene or tetramethylene, and n is 6 to 49 so that the total number of carbon atoms in T₁ is at least 25,

G_x is hydrogen, straight or branched chain alkyl of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, phenyl, or said phenyl or said phenylalkyl substituted on the phenyl ring by 1 to 4 alkyl of 1 to 4 carbon atoms,

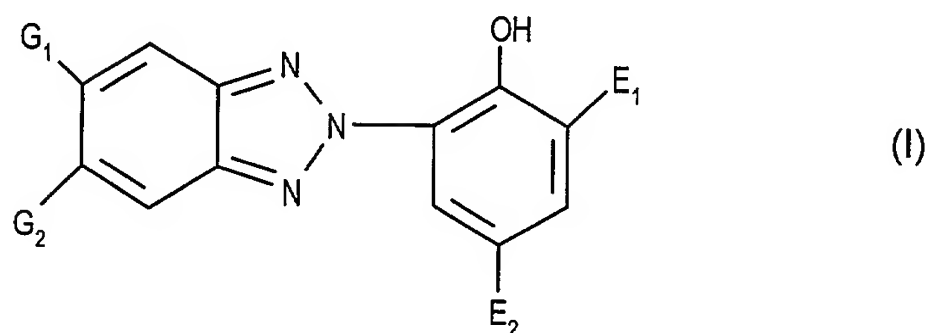
T₂ is straight or branched alkyl of 23 to 100 carbon atoms; and

with the proviso that at least one of E₁, E₂ and E₂' is a group -(CH₂)_m-CO-X-T₁ or a group -(CH₂)_p-X-CO-T₂ or at least one of G₂ and G₂' is a group -COOG₃, -CO-G₃, -CO-NH-G₃, -CO-N(G₃)₂, -N(G₃)-CO-G₃,



where G_3 is T_1 or T_2 .

31. (new) A compound according to claim 30 of formula I



wherein

G_1 is hydrogen,

G_2 is hydrogen, chloro, fluoro, cyano, E_3SO- , E_3SO_2- , $-COOG_3$, CF_3 , $-CO-G_3$, $-CO-NH-G_3$ or $-CO-N(G_3)_2$,

G_3 is hydrogen, straight or branched chain alkyl of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms or phenyl; or G_3 is T_1 or T_2 ,

E_1 is hydrogen, straight or branched chain alkyl of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 24 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms or phenyl; or E_1 is the group $-(CH_2)_m-CO-X-T_1$ where m is 0, 1 or 2; or E_1 is the group $-(CH_2)_p-X-CO-T_2$ where p is 1, 2 or 3,

E_2 is straight or branched alkyl chain of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms or phenyl; or E_2 is said alkyl of 1 to 24 carbon atoms or said alkenyl of 2 to 18 carbon atoms

substituted by one or more -OH, -OCOE₁₁, -OE₄, -NHCOE₁₁, -NHE₄ or -N(E₄)₂, or mixtures thereof, where E₄ is straight or branched chain alkyl of 1 to 24 carbon atoms; or said alkyl or said alkenyl interrupted by one or more -O-, -NH- or -NE₄- groups or mixtures thereof and which can be unsubstituted or substituted by one or more -OH, -OE₄ or -NH₂ groups or mixtures thereof; or E₄ is T₁ or T₂,

X is -O- or -N(E₁₆)-,

E₁₆ is hydrogen,

E₁₁ is a straight or branched chain C₁-C₁₈alkyl, C₅-C₁₂cycloalkyl, C₆-C₁₄aryl or C₇-C₁₅aralkyl; or E₁₁ is T₁ or T₂,

E₃ is alkyl of 1 to 20 carbon atoms, hydroxyalkyl of 2 to 20 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms or aryl of 6 to 10 carbon atoms,

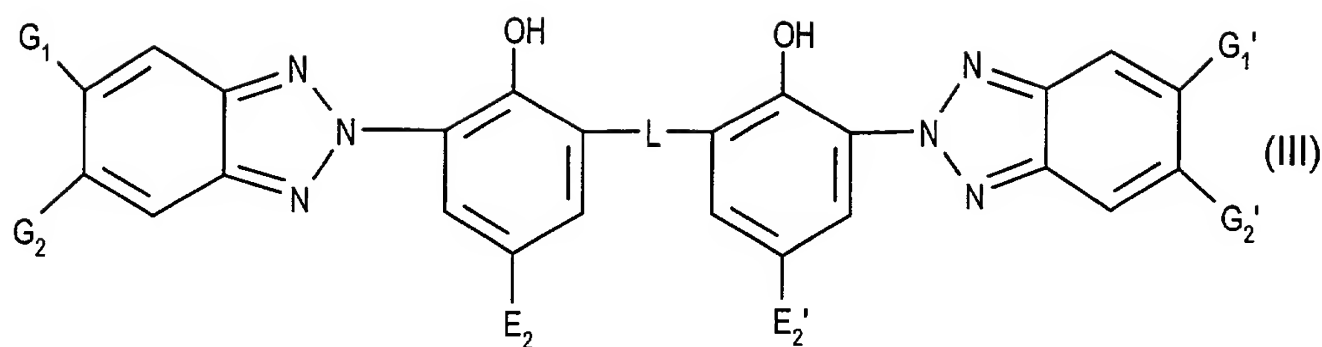
T₁ is straight or branched chain alkyl of 25 to 70 carbon atoms, or said alkyl substituted by one hydroxyl group and interrupted by one oxa moiety, or a mixture of such alkyl moieties; or

T₁ is -(R-O)_n-R-OH where R is ethylene, propylene, trimethylene or tetramethylene, and n is 6 to 49 so that the total number of carbon atoms in T₁ is at least 25, and

T₂ is straight or branched alkyl of 23 to 70 carbon atoms; and

with the proviso that at least one of E₁ and E₂ is a group -(CH₂)_m-CO-OT₁ or a group -(CH₂)_p-O-CO-T₂, or G₂ is a group -COOG₃, -CO-G₃, -CO-NH-G₃ or -CO-N(G₃)₂ where G₃ is T₁ or T₂.

32. (new) A compound according to claim 30 of formula III



wherein

G_1 and G_1' are hydrogen,

G_2 and G_2' are independently hydrogen, chloro, fluoro, cyano, E_3SO- , E_3SO_2- , $-COOG_3$, CF_3 , $-CO-G_3$, $-CO-NH-G_3$ or $-CO-N(G_3)_2$,

G_3 is hydrogen, straight or branched chain alkyl of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms or phenyl; or G_3 is T_1 or T_2 ,

E_2 and E_2' are independently straight or branched alkyl chain of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms or phenyl; or E_2 and E_2' are independently said alkyl of 1 to 24 carbon atoms or said alkenyl of 2 to 18 carbon atoms substituted by one or more $-OH$, $-OCOE_{11}$, $-OE_4$, $-NHCOE_{11}$, $-NHE_4$ or $-N(E_4)_2$, or mixtures thereof, where E_4 is straight or branched chain alkyl of 1 to 24 carbon atoms; or said alkyl or said alkenyl interrupted by one or more $-O-$, $-NH-$ or $-NE_4-$ groups or mixtures thereof and which can be unsubstituted or substituted by one or more $-OH$, $-OE_4$ or $-NH_2$ groups or mixtures thereof; or E_4 is T_1 or T_2 ,

E_{16} is hydrogen,

E_{11} is a straight or branched chain C_1 - C_{18} alkyl, C_5 - C_{12} cycloalkyl, C_6 - C_{14} aryl or C_7 - C_{15} aralkyl; or E_{11} is T_1 or T_2 ,

E_3 is alkyl of 1 to 20 carbon atoms, hydroxyalkyl of 2 to 20 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms or aryl of 6 to 10 carbon atoms,

L is alkylene of 1 to 12 carbon atoms, alkylidene of 2 to 12 carbon atoms, benzylidene, p-xylylene, $\alpha, \alpha, \alpha', \alpha'$ -tetramethyl-m-xylylene or cycloalkylidene,

T₁ is straight or branched chain alkyl of 25 to 70 carbon atoms, or said alkyl substituted by one hydroxyl group and interrupted by one oxa moiety, or a mixture of such alkyl moieties; or

T₁ is $-(R-O)_n-R-OH$ where R is ethylene, propylene, trimethylene or tetramethylene, and n is 6 to 49 so that the total number of carbon atoms in T₁ is at least 25, and

T₂ is straight or branched alkyl of 23 to 70 carbon atoms; and

with the proviso that at least one of E₂ and E₂' is a group $-(CH_2)_m-CO-OT_1$ or a group $-(CH_2)_p-O-CO-T_2$, or at least one of G₂ and G₂' is a group $-COOG_3$, $-CO-G_3$, $-CO-NH-G_3$ or $-CO-N(G_3)_2$ where G₃ is T₁ or T₂.

33. (new) A compound according to claim 30 which is

(a) C₂₀-C₄₀alkyl 3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyhydrocinnamate melting at 35-51°C;

(b) C₂₀-C₄₀alkyl 3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyhydrocinnamate melting at 58-63°C;

(c) C₂₀-C₄₀alkyl 3-(5-chloro-2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyhydrocinnamate melting at 33°C;

(d) C₂₀-C₄₀alkyl 3-(5-chloro-2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyhydrocinnamate melting at 57-67°C;

(e) C₂₀-C₄₀alkyl 3-(5-trifluoromethyl-2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyhydrocinnamate;

(f) C₂₀-C₄₀alkyl 3-(5-phenylsulfonyl-2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyhydrocinnamate melting at 42°C;

(g) C₂₀-C₄₀alkyl 3-(5-phenylsulfonyl-2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyhydrocinnamate melting at 65-74°C; or

(h) C₄₀-C₆₀alkyl 3-(2H-benzotriazol-2-yl)-5-tert-butyl-4-hydroxyhydrocinnamate.

REMARKS

Claims 1-29 are canceled. New claims 30-33 are presented for examination in this divisional application.

Claims corresponding to original composition claims 5-18 and 26-29 are found allowable in the parent application in a Notice of Allowance dated Dec. 4, 2001. Claims to compounds were ultimately canceled. Applicants now pursue claims to compounds in this divisional application.

The attached specification already contains amendments made during the prosecution of the parent. These amendments were made to repair errors and indefinite matter exactly as was done in the parent. No new matter is added.

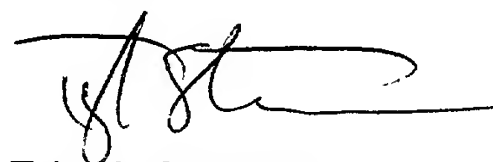
The attached specification also already contains a reference to the parent application.

New claims 30-33 correspond to original claims 1-4 and contain all the limitations of the allowed claims in the parent. That is, amendments are made to the compound definitions exactly as was done in the parent.

No new matter is added with the submission of new claims 30-33.

Applicants submit that present claims 30-33 are in condition for examination on their merits. Favorable consideration of the present claims is respectfully awaited.

Respectfully submitted,



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